IN THE CLAIMS

I claim:

Claims 1-79 (canceled)

80. (previously amended)

The system of claim 164, wherein said memorized voltage values further include a look-up table for determining an anticipated fully-charged, or a nearly-discharged, battery prior to the execution of further program instructions for said processor configuring said power supply.

81. (previously amended)

The system of claim 164, wherein said interconnecting means further include a means for controlling the direction of electrical flow strapped across conductors of a connector receptacle for providing said power supply simultaneous access to both said battery and said battery-powered device.

82. (previously amended)

The system of claim 164, wherein said interconnecting means include a selectively user-positionable connector plug which, in a first position transfers electrical signals between said configurable power supply and said battery and, in a second position transfers electrical signals between said configurable power supply and said battery-powered device.

83. (previously amended)

The system of claim 82, further including program instructions for configuring an accessible processor to generate at least one of one or more visual indicia to a user, thereby prompting said user to manipulate said connector so that its contacts now transfer signals between said configurable power supply and said battery-powered device.

84. (previously amended)

The system of claim 122, further including at both said configurable power supply and said battery-powered device a means of inter-device communications for transferring data signals.

85. (previously amended)

The system of claim 84, wherein said means of inter-device communications further include additional program instructions for configuring processors at said configurable power supply and at said battery-powered device respectively, to transfer data signals by at least one communications medium selected from the group consisting of powerline modulation, and wireless infrared, and serial/parallel data protocols.

86. (previously amended)

The system of claim 122, wherein said acquired battery voltage values are retained in memory for use in further program instructions to configure said processing means for calculating a voltage that represents at least a first output value of said configurable power supply.

87. (canceled)

88. (previously amended)

The method of claim 125, wherein said configurable power supply is incorporated into a discrete modular apparatus for interconnecting in-line between an existing external power-conversion adapter and said battery-powered device and said battery installed therein.

89-92. (canceled)

93. (previously amended)

The system of claim 164, wherein said configuring an output voltage signal further includes:

said processing means including a general-purpose processor accessing an analog-to-digital converter for acquiring voltage values of said battery;

said interconnecting means including a means of interconnecting said battery to an A/D converter, further including a receptacle at said battery for mating to a connector plug;

a memory to which the general-purpose processor writes:

an acquired first value expressing a maximum output-voltage of said battery in a no-load condition;

a second value being retrieved from said memorized voltage values as a look-up table comprising a substantial matrix of predetermined battery design parameters expressed as both maximum- and minimum-voltage reference values for a multiplicity of battery cells-per-pack configurations arranged by chemistry types;

said computer readable medium further embodying program instructions for configuring the general-purpose processor for performing a comparing of the acquired first value to the retrieved second value as a maximum-voltage reference value, and

said analyzing means further including the general-purpose processor analyzing the results of the comparing, by determining whether the acquired first value is within a predetermined tolerance range of voltage variance when compared to the retrieved second value as the maximum-voltage reference value, whereby the analyzing will result in either:

accepting the comparing as confirmation that both voltage values are substantially the same, whereupon the general-purpose processor writes both values to memory, or

rejecting the comparing because the acquired first value falls outside the predetermined tolerance range of voltage variance when compared to the retrieved second value as the maximum-voltage reference value, whereupon the general-purpose processor discards the now-rejected maximum-voltage reference value and then retrieves from among those previously unretrieved maximum-voltage values in the look-up table another reference value for repeating the comparing and analyzing;

the retrieving, comparing and analyzing repeat until the analyzing results in an accepting of both the acquired first and retrieved second value as the maximum-voltage reference value, whereupon the general-purpose processor writes both values to memory;

said acquiring further including a means of electrically engaging at least one of one or more resistive elements as a predetermined electrical pre-load temporarily applied to said battery for the analog-to-digital converter acquiring from said battery a third value expressed as a minimum output-voltage, the general-purpose processor then writing the acquired third value to memory;

further program instructions for configuring the general-purpose processor for retrieving from the look-up table a fourth value expressing a predetermined minimum design voltage of a battery of the same cells-per-pack configuration and chemistry type as that of the previously accepted maximum-voltage reference value, the general-purpose processor then writing the retrieved fourth value to memory as a minimum-voltage reference value;

additional program instructions for configuring the general-purpose processor for performing a comparing of the acquired third value to the retrieved fourth value as the minimum-voltage reference value;

said analyzing means further including program instructions for configuring the general-purpose processor for analyzing the results of the comparing by determining whether the acquired third value is within a predetermined tolerance

range of voltage variance when compared to the retrieved fourth value as the minimum-voltage reference value, thereby the analyzing resulting in either:

accepting the comparing as confirmation that both values are substantially the same, whereupon the general-purpose processor writes both values to memory, or

rejecting the comparing because the acquired third value falls outside the predetermined tolerance range of voltage variance when compared to the retrieved fourth value as the minimum-voltage reference value, whereupon the general-purpose processor then retrieves from among previously unretrieved minimum-voltage reference values in the look-up table another reference value for repeating the comparing and analyzing;

the retrieving, comparing and analyzing repeat until the analyzing results in an accepting of both the acquired third and retrieved fourth value as the maximum-voltage reference value, whereupon the general-purpose processor writes both values to memory;

configuring the general-purpose processor by further program instructions for executing a LIST function comprised of a compiling of the four previously accepted voltage values stored in memory, and

configuring the general-purpose processor by additional program instructions for performing a SORT function upon the listed values by arranging the four previously accepted voltage values in ascending order,

resulting in not only a correctly determined battery chemistry type from among those in said look-up table, but also yielding sorted values listed in a specific sequential order consisting of:

first, the retrieved minimum-voltage reference value;

second, the acquired minimum battery voltage value;

third, the acquired maximum battery voltage value, and

fourth, the maximum-voltage reference value.

94. (previously amended)

The system of claim 93, wherein said look-up table further includes a charge rate for each of said battery chemistry types as a variable in further program instructions for said general-purpose processor performing a calculation to determine an impedance value of said at least one of one or more resistive elements.

95. (previously amended)

The system of claim 93, wherein said performing of said SORT function upon the listed values further includes an acquired maximum-voltage value that varies significantly from said predetermined battery design parameter because said battery being fully charged causes it to output an excessively elevated maximum voltage, whereupon said acquired maximum-voltage value is adjusted by the predetermined tolerance range of voltage variance being calculated into said maximum-voltage value prior to said performing of said SORT function.

96. (previously amended)

The system of claim 93, wherein said performing of said SORT function upon the listed values further includes an acquired minimum-voltage value that varies significantly from said predetermined battery design parameter because said battery being nearly discharged causes it to output an excessively low minimum voltage, whereupon said acquired minimum-voltage value is adjusted by the predetermined tolerance range of voltage variance being calculated into said minimum-voltage value prior to said performing of said SORT function.

97. (previously amended)

The method of claim 167, further including a method of determining an anticipated fully-charged or nearly-discharged battery, comprising:

providing an apparatus for performing program instructions, comprising:

providing a processor capable of performing control functions;

providing a processor-controlled analog-to-digital converter interconnected to said battery via an interface comprised of at least one of one or more input/output ports accessible to a plurality of conductors and contacts of a connector assembly, said interface being so configured as to provide a means of controllably electrically coupling at least one of one or more resistive elements as a temporary electrical preloading of said battery for outputting to said analog-to-digital converter at least one minimum battery voltage, instead of a previous outputting of at least one maximum battery voltage;

providing a memory accessible to said processor for storing voltage values acquired by said analog-to-digital converter;

providing a computer-readable medium including a look-up table, also stored in said memory, comprising a substantial matrix of battery design parameters expressed as voltage values of a multiplicity of batteries arranged by both chemistry type and typical cells-per-pack configurations;

said computer-readable medium further including program instructions for configuring said processor to perform a first comparing of the acquired maximum voltage value to each maximum design voltage value from said look-up table, and

further including program instructions for configuring said processor to perform a second comparing of the acquired minimum voltage value to each minimum design voltage value from said look-up table,

whereby said first comparing results in said acquired maximum voltage value being excessively elevated as compared to said maximum design voltage values from said look-up table, thereby determining said anticipated fully-charged battery and, further,

whereby said second comparing results in said acquired minimum voltage value being excessively depressed when as compared to said minimum design voltage values from said look-up table, thereby determining said anticipated nearly-discharged battery.

98. (previously amended)

The method of claim 97, wherein said determining an anticipated fully-charged battery or nearly-discharged battery further includes excessively elevated or excessively depressed voltage values which are compensated for by additional program instructions for configuring said processor to adjust the excessive voltage values downward or upward respectively by a predetermined voltage tolerance amount, resulting in adjusted maximum- or minimum-voltage values that are available for other program instructions.

99. (previously amended)

The method of claim 167, wherein said preloading said battery further including at least one of one or more said resistive elements as a power resistor having an impedance value substantial enough to simulate an operational load of said powered device.

100. (previously amended)

The method of claim 97, wherein said temporary electrical preloading of said battery further including a resistive value of said at least one of one or more resistive elements being determined by the charge rate of said battery based on its chemistry-type, as expressed in a look-up table that lists voltage values of batteries by chemistry types and charge rates.

101. (previously amended)

The method of claim 97, wherein said determining of said nearly-discharged battery further including an excessively depressed minimum voltage value indicating a potentially unsafe battery.

102. (previously amended)

The method of claim 101, wherein said determining of said nearly-discharged battery further includes a means of notifying a user of said potentially unsafe battery.

103. (previously amended)

The method of claim 167, wherein said determining said power requirement of said previously unknown battery-powered device further including a method of determining the chemistry-type of a battery, comprising:

providing said processor as a general-purpose processor accessing an analog-to-digital converter for acquiring voltage values of said battery;

providing a means of interconnecting said battery to said A/D converter, including a receptacle at said battery for mating to a user-positionable connector plug;

providing a memory to which the general-purpose processor writes:

an acquired first value expressing a maximum output-voltage of said battery in a no-load condition;

a second value being retrieved from said memorized voltage values as a look-up table comprising a substantial matrix of predetermined battery design parameters expressed as both maximum- and minimum-voltage reference values for a multiplicity of battery cells-per-pack configurations arranged by chemistry types;

providing a computer-readable medium embodying program instructions for configuring the general-purpose processor for performing a comparing of the acquired first value to the retrieved second value as a maximum-voltage reference value, and

the general-purpose processor analyzes the results of the comparing by determining whether the acquired first value is within a predetermined tolerance range of voltage variance when compared to the retrieved second value as the maximum-voltage reference value, thereby the analyzing will result in either:

accepting the comparing as confirmation that both voltage values are substantially the same, whereupon the general-purpose processor writes both values to memory, or

rejecting the comparing because the acquired first value falls outside the predetermined tolerance range of voltage variance when compared to the retrieved second value as the maximum-voltage reference value, whereupon the general-purpose processor discards the now-rejected maximum-voltage reference value and then retrieves from among those previously maximum-voltage values in the look-up table another reference value for repeating the comparing and analyzing;

the retrieving, comparing and analyzing repeat until the analyzing results in an accepting of both the acquired first and retrieved second value as the maximum-voltage reference value, and the general-purpose processor writes both values to memory;

providing a means of electrically engaging at least one of one or more resistive elements as a predetermined electrical pre-load temporarily applied to said battery for the analog-to-digital converter acquiring from said battery a third value expressed as a minimum output-voltage, the general-purpose processor then writing the acquired third value to memory;

providing further program instructions for configuring the general-purpose processor for retrieving from the look-up table a fourth value expressing a predetermined minimum design voltage of a battery of the same cells-per-pack configuration and chemistry type as that of the previously accepted maximum-voltage reference value, the general-purpose processor then writing the retrieved fourth value to memory as a minimum-voltage reference value;

providing additional program instructions for configuring the general-purpose processor for performing a comparing of the acquired third value to the retrieved fourth value as the minimum-voltage reference value;

providing further program instructions for configuring the general-purpose processor for analyzing the results of the comparing by determining whether the acquired third value is within a predetermined tolerance range of voltage variance when compared to the retrieved fourth value as the minimum-voltage reference value, thereby the analyzing resulting in either:

accepting the comparing as confirmation that both values are substantially the same, whereupon the general-purpose processor writes both values to memory, or

rejecting the comparing because the acquired third value falls outside the predetermined tolerance range of voltage variance when compared to the retrieved fourth value as the minimum-voltage reference value, whereupon the general-purpose processor retrieves from among those previously unretrieved minimum-voltage reference values in the look-up table another reference value for repeating the comparing and analyzing;

the retrieving, comparing and analyzing repeat until the analyzing results in an accepting of both the acquired third and retrieved fourth value as the maximum-voltage reference value, and the general-purpose processor writes both values to memory;

configuring the general-purpose processor by further program instructions for executing a LIST function comprised of a compiling of the four previously accepted voltage values stored in memory, and

configuring the general-purpose processor by additional program instructions for performing a SORT function upon the listed values by arranging the four previously accepted voltage values in ascending order,

whereby resulting in only a correctly determined battery chemistry type from among those in the look-up table yielding sorted values listed in a specific sequential order consisting of:

first, the retrieved minimum-voltage reference value;

second, the acquired minimum battery voltage value;

third, the acquired maximum battery voltage value, and

fourth, the maximum-voltage reference value.

104. (previously amended)

The method of claim 103, wherein connector plug includes a first position for enabling access of said general-purpose processor to said battery, and a second position for enabling access of said general-purpose processor to a device powered by said battery.

105. (previously amended)

The method of claim 103, wherein said receptacle further includes a means of controlling the direction of electrical flow strapped across its contacts, resulting in said general-purpose processor having access to both said battery and a device powered by said battery, whereby the need for said connector plug to be user-positionable is eliminated.

106. (previously amended)

The method of claim 103, wherein said predetermined design parameters substantially represent industry-standard values for charge rates, minimum and maximum voltages of individual battery cells, as well as typical battery pack configurations for at least one of one or more identifiable category of battery-powered devices.

107. (previously amended)

The method of claim 106, wherein said category of battery-powered devices is based on analyzing battery voltages and the typical number of cells normally required to power at least one particular class of substantially similar battery-powered devices.

108. (previously amended)

The method of claim 103, wherein said predetermined tolerance range of voltage variance includes allowances for voltage variances caused by either fully-charged or nearly discharged batteries.

109. (previously amended)

A system for configuring an output of a configurable power supply, comprising:

interfacing means for electrically coupling said power supply to independently and simultaneously access both a previously unknown battery-powered device and an installed battery thereof, said coupling resulting in the power supply being capable of bypassing said battery as a source of power for the powered device, without limiting said battery's ability to automatically access said device;

preloading means for temporarily electrically coupling to the battery at least one of one or more substantial resistive loads, said resistive loads being capable of combining in order to vary the coupled load;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium, comprising:

detecting means for acquiring at least one value as to voltage sag resulting from said preloading;

analyzing means for evaluating the acquired voltage-sag value and determining an anticipated fully-charged battery voltage;

said analyzing means further for producing an output voltage value of the configurable power supply by performing in a work space at least one of one or more predetermined computations based on acquired and memorized voltage values, and

controlling means accessible to said processing means and power supply for configuring the output voltage of the power supply to said previously produced output voltage value,

whereby, said power supply delivers a suitably configured power signal to said device.

110. (previously amended)

The system of claim 109, wherein said analyzing means includes said predetermined computations based on memorized voltage values that are stored in a look-up table comprising at least one of one or more substantial matrices of battery design parameters.

111. (previously amended)

The system of claim 109, wherein said configurable power supply is a module so interposed as to be electrically coupled between a fixed-voltage power supply and said battery, whereby the interposed module reconfigures an inputted fixed voltage signal to be then output as a voltage signal of a value determined by said analyzing means.

112. (previously amended)

The system of claim 109, wherein said detecting means further includes a no-load maximum battery voltage value which is acquired prior to said acquiring the value as to voltage sag, then a predetermined computation of both acquired values results in an optimized voltage value to which said power supply is configured, thereby eliminating said predetermined computations based on said memorized voltage values.

113. (previously amended)

The system of claim 109, wherein said preloading means further includes a switch accessible to said battery and said substantial resistive loads for varying said coupled load applied to said battery by combining resistive loads.

114. (previously amended)

A system for configuring an output voltage signal of a configurable power supply for powering a battery-powered device, comprising:

interconnecting means for electrically coupling said power supply to independently and simultaneously access both a previously unknown battery-powered device and an *in situ* battery thereof;

preloading means for temporarily electrically coupling to the battery at least one of one or more substantial resistive loads, said resistive loads being capable of combining in order to vary said load;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium, comprising:

detecting means for acquiring and storing battery voltage values, at least one of which is a voltage-sag value resulting from said preloading;

analyzing means for producing an output voltage value of the configurable power supply by performing in a work space at least one of one or more predetermined computations based on acquired voltage values, and

controlling means accessible to said processing means and power supply for configuring the output voltage signal of the power supply to said previously produced output voltage value;

whereby a configured voltage signal is delivered to said battery-powered device from said power supply, instead of from said battery.

115. (previously amended)

The system of claim 114, wherein said interconnecting means further includes said power supply being so electrically coupled as to bypass said battery as a source of power for said powered device, without limiting said battery's ability to automatically access said powered device.

116. (previously amended)

The system of claim 114, wherein said interconnecting means further includes a connector interface interposed electrically at an existing connector located between said

battery and said battery-powered device for providing said powered device access to both said battery and said power supply.

117. (previously amended)

The system of claim 114, wherein said power supply is located within a battery enclosure, so that both said battery and said power supply are contained within the battery-powered device.

118. (previously amended)

The system of claim 117, wherein said battery enclosure is removable.

119. (previously amended)

The system of claim 114, wherein said analyzing means further includes predetermined computations based on both memorized and said acquired voltage values, said memorized values stored in a look-up table representing at least one of one or more substantial matrices of battery design parameters.

120. (previously amended)

The system of claim 114, wherein said detecting and analyzing means further includes acquiring an output voltage signal from the now-configured power supply, which is then compared to said previously produced output voltage value, for assuring that the voltage being output by the power supply is sufficient to power the now-operational device under the actual electrical load of the device.

121. (previously amended)

The system of claim 120, wherein said assuring that said voltage being output by said power supply is sufficient further includes said output voltage of said now-configured power supply being increased if said actual electrical load of said device causes said output voltage to sag.

122. (previously amended)

A system for configuring an output voltage of a configurable power supply, comprising:

attaching means for electrically coupling said power supply to independently and simultaneously access a previously unknown battery-powered device and a battery electrically coupled thereto;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium, comprising:

detecting means for acquiring battery voltage values, at least one of which is based on temporarily electrically coupling to said battery one or more available resistive elements, said elements capable of being combined for providing variable resistances;

analyzing means for determining an output voltage value for the configurable power supply by performing in a work space at least one of one or more predetermined computations based on acquired voltage sag and fully-charged battery voltage values, and

controlling means accessible to said processing means and power supply for configuring the output voltage of the power supply to a previously determined output voltage value.

123. (previously amended)

The system of claim 122, wherein said configurable power supply is an equivalently-configured discrete module that is electrically coupled between an upstream manually-configurable power supply and said battery and powered device downstream, so that an output voltage signal of the manually-configurable power supply is input at the module for confirming that the manually-configured voltage signal substantially matches said previously determined output voltage value, whereby, only if the voltages do substantially match does the output voltage signal of the manually-configurable power supply flow out of the module and on to said powered device.

124. (previously amended)

The system of claim 122, wherein said detecting means further includes acquiring a no-load battery-voltage value which, should said acquired voltage sag value not be valid, provides instead a value in an alternate predetermined computation for determining an output voltage value for said configurable power supply.

125. (previously amended)

A method of configuring an output of a configurable power supply, comprising:

electrically coupling said power supply to access both a previously unknown battery-powered device and a battery installed therein;

processing program instructions embodied on a computer-readable medium accessible to said power supply, comprising:

acquiring a value expressing battery voltage sag by temporarily preloading said battery with at least one of one or more substantial resistive loads from accessible resistive elements that are variable by a combining thereof;

analyzing the acquired value for determining an anticipated fully-charged battery voltage;

performing at least one of one or more predetermined computations for producing an output voltage value based on memorized voltage sag and fully-charged battery voltage values, and

controlling the configurable power supply to output the voltage value resulting from the predetermined computation;

whereby said power supply accesses said powered device and delivers the resulting output voltage thereto.

126. (previously amended)

The method of claim 125, wherein said controlling means further includes an acquired output voltage signal of said configured power supply being compared to said output

voltage value resulting from said predetermined computation, then said output voltage signal being adjusted by said controlling means if the acquired output voltage signal is substantially lower than said output voltage value, thereby reconfiguring the output in order to compensate for the actual resistive load of a now-operational powered device exceeding said resistive load applied when said temporarily preloading said battery was performed.

127. (previously amended)

The method of claim 125, wherein said acquiring further includes a no-load maximum battery voltage value being acquired, prior to said value expressing voltage sag caused by temporarily preloading said battery being acquired, and a predetermined computation of both values results in an output voltage value to which said power supply is configured.

128-163. (canceled)

164. (previously amended)

A system for configuring an output voltage signal of a configurable power supply for powering a previously unknown battery-powered device, comprising:

interconnecting means at said battery-powered device for electrically coupling a battery and said configurable power supply, so that the power supply accesses first said battery and then said battery-powered device;

preloading means for temporarily electrically attaching a first resistive element at said battery;

varying means for further preloading said battery by combining said first resistive element with at least one other available resistive element;

processing means accessible to said power supply for executing program instructions embodied on a computer-readable medium;

acquiring means for capturing a voltage sag value when preloading, then again when varying said preloading;

analyzing means performed in a work space for determining an anticipated fully-charged battery voltage based on at least one of the acquired voltage values, then further analyzing by performing at least one of one or more predetermined computations based on acquired and memorized voltage values, resulting in a value for configuring a first output voltage of said configurable power supply, and

delivering the output voltage signal to the battery-powered device from said configurable power supply, instead of from said battery.

165. (previously amended)

The system of claim 164, wherein said configuring said first output voltage of said power supply is by means of a manually-adjustable selector manipulated by a user.

166. (previously amended)

The system of claim 164, wherein said configuring said first output voltage of said power supply is automatic, and the power supply is interconnected as a module electrically coupled between a fixed-output power supply and said battery.

167. (previously amended)

A method of determining a power requirement of a previously unknown battery-powered device, comprising:

interconnecting said powered device for receiving power by electrically coupling an installed battery and a configurable power supply thereto, so that the power supply accesses first said battery and then said device;

preloading said battery by temporarily electrically attaching a first resistive element thereto;

further preloading said battery by combining said first resistive element with at least one other available resistive element;

providing a processor accessible to said power supply for executing program instructions embodied on a computer-readable medium;

acquiring voltage sag values upon said preloading, then again when varying said preloading;

analyzing, in a work space, an anticipated fully-charged battery voltage based on at least one of the acquired voltage values, and

further analyzing by performing at least one of one or more predetermined computations based on acquired and memorized voltage values, resulting in determining a voltage value as the power requirement of the powered device;

whereby said determined value is for configuring a first output voltage signal of said power supply.

168. (previously amended)

The method of claim 167, wherein said configurable power supply configures automatically by a controller means at said processor, and said configurable power supply is enclosed in an in-line module that is interconnected between a manually-adjustable power supply and said battery installed within said battery-powered device, so as to be electrically coupled for accessing both said battery and said battery-powered device.

169. (previously amended)

The method of claim 167, wherein said analyzing further includes said at least one of said acquired voltage values being a no-load maximum voltage value for performing a predetermined computation thereon which results in a voltage value as both the power requirement of said powered device and the voltage value to which an output of said power supply will be configured.